

Claims

What is claimed is:

1. A web for use in applying a functional material, comprising:
 - a layer having a plurality of elevated regions, the layer defining a plurality of cavities such that the cavities are located between adjacent elevated regions, the layer having a plurality of depressed regions located intermediate the elevated regions, the layer having a longitudinal direction and a longitudinal mid-plane defined therethrough;
 - a plurality of functional material members located in the cavities of the layer, the functional material members adapted for adhesion of particles or surfaces thereon; and
- 10 wherein the layer is extendable in the longitudinal direction such that the elevated regions are moved in a direction towards the longitudinal mid-plane.
2. The web as set forth in claim 1, wherein before the layer is extended the elevated regions define the uppermost portion of the layer, and wherein after the layer is extended the functional material members define the uppermost portion of the layer.
3. The web as set forth in claim 1, wherein before the layer is extended the elevated regions define the uppermost portion of the layer, and wherein after the layer is extended the elevated regions still define the uppermost portion of the layer.
4. The web as set forth in claim 1, further comprising a reinforcing layer attached to the depressed regions of the layer that has the plurality of elevated regions.
5. The web as set forth in claim 4, wherein the reinforcing layer is elastic.

6. The web as set forth in claim 4, wherein the reinforcing layer is attached by a plurality of spot bonds, and wherein extension in the longitudinal direction of the layer that has the plurality of elevated regions causes the spot bonds to break.

7. The web as set forth in claim 1, wherein the layer defines a plurality of cavities such that the cavities are located between adjacent depressed regions, and wherein the plurality of functional material members are located in the cavities that are between adjacent depressed regions and that are between adjacent
5 elevated regions.

8. The web as set forth in claim 7, wherein the layer is extendable in the longitudinal direction such that the depressed regions are moved in a direction towards the longitudinal mid-plane.

9. The web as set forth in claim 7, wherein before the layer is extended the elevated regions define the uppermost portion of the layer and the depressed regions define the lowermost portion of the layer, and wherein after the layer is extended the functional material members located between adjacent elevated
5 regions define the uppermost portion of the layer, and wherein after the layer is extended the functional material members located between adjacent depressed regions define the lowermost portion of the layer.

10. The web as set forth in claim 1, wherein the layer has a cross-sectional shaped that is generally sinusoidal.

11. The web as set forth in claim 1, wherein the functional material members are hooks of a hook and loop fastener system.

12. The web as set forth in claim 1, wherein the functional material members are hooks that are configured for retaining objects thereon.

13. The web as set forth in claim 1, wherein the functional material members are abrasive members that are more abrasive than the layer, and the abrasive members are configured for cleaning a surface.
14. The web as set forth in claim 1, wherein the functional material members are fastening members selected from the group consisting of a tacky adhesive, a pressure sensitive adhesive, a thermally activatable adhesive, hooks from a hook and loop fastener system, and a gecko-like adhesive.
15. The web as set forth in claim 1, wherein the layer is extendable in the longitudinal direction by a temperature difference imparted onto the layer.
16. The web as set forth in claim 1, wherein the layer is made from a water sensitive material such that the layer is extendable in the longitudinal direction when water is imparted onto the layer.
17. The web as set forth in claim 1, wherein the extendability of the layer in the longitudinal direction is irreversible.
18. The web as set forth in claim 1, wherein the layer is made at least in part from a shape memory polymer, and wherein the layer is extendable in the longitudinal direction by a temperature difference imparted to the layer.
19. The web as set forth in claim 1, wherein the cavity is a dome configured for moving towards and away from the longitudinal mid-plane.
20. The web as set forth in claim 1, wherein each cavity is made from a plurality of domes configured for moving towards and away from the longitudinal mid-plane.
21. A web for use in applying a functional material, comprising:
a layer having a plurality of alternating elevated and depressed regions, the layer defining a plurality of cavities between two successive elevated regions, the

layer having a longitudinal direction and a longitudinal mid-plane defined therethrough;

5 a plurality of functional material members located in the cavities of the layer, the functional material members adapted for adhesion of particles or surfaces thereon; and

wherein the layer has a first orientation and a second orientation, the

10 elevated regions are positioned generally closer to the longitudinal mid-plane when the layer is in the second orientation as opposed to when the layer is in the first orientation.

22. The web as set forth in claim 21, wherein the layer is extendable in the longitudinal direction such that the layer is positionable from the first orientation to the second orientation.

23. The web as set forth in claim 21, wherein the layer is extendable and retractable in the longitudinal direction such that the layer is positionable from the first orientation to the second orientation and from the second orientation to the first orientation.

24. The web as set forth in claim 21, wherein in the second orientation the layer has a generally flat shape such that the elevated regions and the depressed regions are neither elevated nor depressed and the plurality of cavities defined by the layer are not present in the second orientation.

25. The web as set forth in claim 21, wherein in the first orientation the elevated regions define the uppermost portion of the layer, and wherein in the second orientation the functional material members define the uppermost portion of the layer.

26. The web as set forth in claim 21, further comprising a reinforcing layer attached to the depressed regions.

27. The web as set forth in claim 21, wherein the layer defines a plurality of cavities between two successive depressed regions, and wherein the plurality of frictional material members are located in the cavities that are between two successive elevated regions and between two successive depressed regions.

28. The web as set forth in claim 21, wherein first functional material members are hooks that are configured for retaining objects thereon.

29. The web as set forth in claim 21, wherein the functional material members are abrasive members that are more abrasive than the layer and are configured for cleaning a surface.

30. The web as set forth in claim 21, wherein the functional material members are fastening members selected from the group consisting of a tacky adhesive, a pressure sensitive adhesive, a thermally activatable adhesive, loops from a hook and loop fastener system, hooks from a hook and loop fastener system, and a
5 gecko-like adhesive.

31. The web as set forth in claim 21, wherein the layer is positionable between the first orientation and the second orientation by a temperature difference that is imparted onto the layer.

32. The web as set forth in claim 21, wherein the layer is made from a water sensitive material such that the layer is positionable between the first orientation and the second orientation when water is imparted onto the layer.

33. The web as set forth in claim 21, wherein the layer is configured to be positioned between the first orientation and the second orientation only a single time.

34. The web as set forth in claim 21, wherein the layer is made at least in part from a shape memory polymer, and wherein the layer is positionable between the

first orientation and the second orientation by a temperature difference imparted on to the layer.

35. The web as set forth in claim 21, wherein the cavity is a dome configured for reorientation towards and away from the longitudinal mid-plane.

36. The web as set forth in claim 21, wherein each cavity is made from a plurality of domes configured for reorientation towards and away from the longitudinal mid-plane.

37. A web for use in applying a functional material, comprising:

a layer having a plurality of elevated regions and a plurality of depressed regions located intermediate the elevated regions, the elevated regions and depressed regions are configured such that the layer has a cross-sectional shape 5 that is generally sinusoidal, the layer defines a plurality of cavities that are located between adjacent elevated regions, the layer having a longitudinal direction and a longitudinal mid-plane defined therethrough;

a plurality of hooks from a hook and loop fastener system located in the cavities of the layer; and

10 wherein the elevated regions of the layer define the uppermost portion of the layer, and wherein the layer is extendable in the longitudinal direction such that the elevated regions are moved in a direction towards the longitudinal mid-plane and wherein after this extension the hooks instead of the elevated regions define the uppermost portion of the layer, and wherein the layer is retractable such that 15 the elevated regions are moved in a direction away from the longitudinal mid-plane such that the elevated regions again define the uppermost portion of the layer.

38. An article having an activatable fastener and configured to be worn by a user, comprising:

a body portion configured to be worn by a user, the body portion having a first surface and a second surface opposite from the first surface;

5 a fastening member attached to the body portion and having a recessed orientation in which the fastening member is positioned below the first surface of

the body portion, and having an elevated orientation in which the fastening member is positioned above the first surface of the body portion, the fastening member engageable with the body portion in order to help retain the body portion
10 on the user; and

wherein in the elevated orientation the fastening member is more easily engageable with the body portion than when the fastening member is in the recessed orientation.

39. The article as set forth in claim 38, wherein:

the fastening member is a plurality of hooks;
the body portion has a plurality of loops located on the second surface; and
the plurality of hooks are engageable with the plurality of loops in order to
5 help retain the body portion on the user.

40. The article as set forth in claim 38, wherein:

the body portion has a stretch member extending therefrom, the stretch member is a necked bonded laminate; and
the body portion has a tab member extending from the stretch member, the
5 tab member is a spunbond/meltblown/spunbond, the fastening member is attached to the tab member of the body portion.

41. The article as set forth in claim 38, wherein the application of pressure on the second surface of the body portion proximate to the fastening member causes the fastening member to be moved from the recessed orientation to the elevated orientation.

42. The article as set forth in claim 38, wherein:

the body portion is a diaper and has a portion of a hook and loop type fastener disposed thereon; and
the fastening member is the complementary portion of the hook and loop
5 type fastener to that disposed on the body portion.

43. The article as set forth in claim 38, wherein at least about 50 grams of force is needed to reorient the fastening member from the recessed orientation to the elevated orientation.

44. The article as set forth in claim 38, wherein at least about 400 grams of force is needed to reorient the fastening member from the recessed orientation to the elevated orientation.

45. An activatable fastening system, comprising:

a plurality of hooks from a hook and loop type fastener, the hooks having an activated orientation in which the hooks are engageable with loops from a hook and loop type fastener in order to be retained thereon, and wherein the hooks have

5 a deactivated orientation in which the hooks are less engageable with the loops from a hook and loop type fastener than when in the activated orientation; and

an actuation member engageable with the plurality of hooks and activatable by a user such that the actuation member repositions the plurality of hooks between the activated orientation and the deactivated orientation.

46. The activatable fastening system as set forth in claim 45, wherein in the deactivated orientation the actuation member shields a portion of the plurality of hooks from the loops.

47. The activatable fastening system as set forth in claim 45, wherein in the deactivated orientation the actuation member reduces the amount of curvature of the hooks.

48. The activatable fastening system as set forth in claim 45, wherein the actuation member is a wire frame that engages the outer surface of the hooks.

49. The activatable fastening system as set forth in claim 45, wherein the actuation member is biased into a position such that the actuation member positions the hooks in the deactivated orientation.

50. The activatable fastening system as set forth in claim 45, wherein:
 - the hooks define a hollow interior;
 - the actuation member has a rigid portion thereof disposed in the hollow interior of the hooks, actuation of the actuation member reduces the amount of
- 5 curvature of the hooks when the hooks are repositioned from the activated orientation to the deactivated orientation.
51. The activatable fastening system as set forth in claim 45, wherein the actuation member is pushed by a user in order to reposition the hooks from the activated orientation to the deactivated orientation.
52. The activatable fastening system as set forth in claim 45, wherein in the deactivated orientation the hooks are completely prevented from engaging the loops and being retained thereon.
53. The activatable fastening system as set forth in claim 45, wherein the hooks have a semi-activated orientation in which the hooks are less engageable with the loops than in the activated orientation but are more engageable with the loops than in the deactivated orientation, the actuation member repositions the hooks
- 5 between the activated, semi-activated, and deactivated orientations.